

What is claimed is:

- 1 1. A fuse detection circuit, comprising:
2 a fuse bridge circuit in which a first arm of the fuse bridge circuit has a fuse under
3 detection, for producing a first voltage in the first arm in response to a read signal pulse;
4 a second arm of the fuse bridge circuit having a reference fuse, for producing a second
5 voltage in the second arm in response to the read signal pulse;
6 a sensing circuit for sensing the first voltage and the second voltage as status value data;
7 a latch circuit keeping the data in the sensing circuit; and
8 a timing control circuit to turn off the fuse bridge circuit after the latch circuit has been
9 activated.
- 1 2. The circuit as in claim 1 wherein, the fuse under detection and the reference fuse have the
2 same resistance prior to programming or burning the fuse under detection.
- 1 3. The circuit as in claim 1 wherein, the first arm and the second arm have different
2 resistances, while the fuse under detection and the reference fuse have the same resistance prior
3 to programming or burning the fuse under detection.
- 1 4. The circuit as in claim 1 wherein, the timing control circuit is in a feedback circuit with
2 the fuse bridge circuit.
- 1 5. The circuit as in claim 1 wherein, the timing control circuit has a first NAND gate
2 receiving a first current pulse and a second current pulse as inputs, and a second NAND gate
3 receiving an output of the first NAND gate and the read signal pulse as inputs, and an output of
4 the second NAND gate delaying turn off the bridge circuit current until after the latch circuit has
5 been activated.
- 1 6. The circuit as in claim 5 wherein, a transition of the second current pulse turns off the
2 timing control circuit.

1 7. The circuit as in claim 5 wherein, the latch circuit extends the duration of the second
2 current pulse relative to the duration of the read signal pulse.

1 8. The circuit as in claim 1 wherein, the first arm and the second arm have respective
2 transistors of different multiples of a gate width to gate length ratio.

1 9. The circuit as in claim 1 wherein, the first arm and the second arm have different
2 resistances.

1 10. The circuit as in claim 1 wherein, the first arm and the second arm have different
2 resistances, and said different resistances are proportioned relative to one another to adjust
3 sensitivity to a status of the fuse under detection.

1 11. A method for detecting a status of a burnable or programmable fuse, comprising the
2 steps of:
3 detecting a differential voltage in response to a read signal to a fuse bridge circuit in
4 which a first arm of the fuse bridge circuit has a fuse under detection, and a second arm of the
5 fuse bridge circuit has a reference fuse,
6 sensing and storing the differential voltage as status value data;
7 latching the data; and
8 turning off the fuse bridge circuit independent of read signal decay.

1 12. The method of claim 11, further comprising the step of:
2 adjusting sensitivity to the differential voltage.

1 13. The method of claim 11, further comprising the step of:
2 turning off the fuse bridge circuit by a timing control circuit in a feedback circuit with the
3 fuse bridge circuit.

- 1 14. The method of claim 11, further comprising the step of:
2 keeping the status value data in a circuit that senses the differential voltage.
- 1 15. The method of claim 11, further comprising the step of:
2 switching the bridge circuit to a nonoutput state after latching the data.
- 1 16. The method of claim 11, and further comprising the steps of:
2 delaying turn off of the differential voltage by a timing circuit; and
3 switching the bridge circuit to a nonoutput state after latching the data.
- 1 17. The method of claim 16, further comprising the step of:
2 adjusting sensitivity to the differential voltage.
- 1 18. The method of claim 16, further comprising the step of:
2 turning off the fuse bridge circuit by a timing control circuit in a feedback circuit with the
3 fuse bridge circuit.
- 1 19. The method of claim 16, further comprising the step of:
2 keeping the status value data in a circuit that senses the differential voltage.
- 1 20. The method of claim 16, further comprising the step of:
2 switching the bridge circuit to a nonoutput state after latching the data.